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14 November 1998

RECEIVED
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BY: JRM

John Munn, California Department of Forestry
1416 Ninth Street
Sacramento, CA 95814
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Re: SYP 96-002

Dear Mr. Munn, et al:

Enclosed please find an analysis of the above referenced document (Pacific Lumber Company's Sustained Yield Plan (PL's SYP)) by Registered Professional Forester Greg Blomstrom. Please also note that we have included copies of our monthly newspaper, *Voices of Humboldt County*, to assist in your review and analysis of PL's SYP. Please look through these papers, for they included considerable information that may provide insight into your decision.

The Humboldt Watershed Council is a coalition of more than 500 residents from various watersheds all over Humboldt County who have experienced property damaging floods and in some cases, life threatening landslides due to what we believe to be irresponsible upstream land-use. While many of our members have written independent comment letters on PL's SYP, the enclosed analysis serves to bring out deep inconsistencies and blatant misrepresentations in Pacific Lumber's document–a plan that will have long-standing and severely negative effects on all the members of the Watershed Council.

We hope that this information is helpful to you in this time of reflection on Pacific Lumber's SYP and we encourage you to disapprove the plan in its current form. Pacific Lumber's continuing illegal and willfully irresponsible behavior leads us to believe that the information presented in their SYP may be materially misleading, not to mention that we have difficulty believing that they will follow the sustainability standards a SYP is intended to establish.

Thank you for your attention to this matter. Please, Mr. Munn, on behalf of the downstream residents, the citizens of California and the United States, and the integrity of the environment your agency is charged with protecting, deny Pacific Lumber's Sustained Yield Plan.

Sincerely,

Ellen Fred
Co-Director

Enclosures

SISKIYOU FORESTRY CONSULTANTS
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Forest Management/Valuation/Consulting

Comments of Siskiyou Forestry Consultants on
Draft EIR/EIS for the Headwaters Forest Acquisition and the PALCO SYP and HCP and
PALCO SYP/HCP Volumes 1 and 3
November 8, 1998
Prepared by Greg Blomstrom, RPF

Overview

Siskiyou Forestry Consultants has been hired to review portions of the above documents in relation to calculation of the LTSY and the modeling process. Documents reviewed included each of the above volumes, as well as the 2/20/97 Sufficiency Comments of NMFS, CDF, DFG and USFWS as well as the summary of the Draft EIR/EIS. Siskiyou Forestry Consultants has extensive experience in the type of modeling used in the LTSY calculations having worked intensively with Larry Davis, Greg Biging, et.al. on a similar SARA model for an 88,000 acre forested property in NW Humboldt County.

Comments on EIR/EIS

Although this is a minor irritation, it would be extremely helpful if EVERY document had a date on the title page, and EVERY page was numbered, whether within the body of the document or in the appendix. It is extremely difficult to refer to unnumbered pages in various volumes. It is equally difficult to determine the sequence of decisionmaking when the various document preparation dates are not included for EVERY separate volume part and section.

Monitoring of ESA listed species should provide information to the NMFS and the USFWS which is compatible with the effectiveness monitoring components of the Northwest Forest Plan under which the ITP will be issued. HWC-1

In the opinion of SFC there is a major flaw with the discussion of the environmental effects of Long Term Sustained Yield. According to the EIS CDF measures the effectiveness of the proposed SYP according to how well this [long term sustained yield] objective is met as well as whether the long term silvicultural practices under the SYP comply with environmental laws and regulations. The EIS DOES show how well the alternatives meet the objectives of long term sustained yield in relation to the environmental consequences of each of the 5 alternatives discussed. However, the EIS analysis CANNOT show how well the alternatives meet the goal of maximum long term sustained yield because this calculation can only be accomplished within an alternative, not between alternatives. The reason for this is inherent in the calculation of LTSY. LTSY is basically the product of MAI*acres managed. Any alternative, which differs in the acres managed, cannot reasonably be compared to the other alternatives because the HWC-2

basis for comparison is different. Obviously alternative 1 has a lower LTSY than alternative 2 because fewer acres are under management.

NWC-2 con.

Instead of between alternative LTSY analysis the EIS should analyze the within-alternative effects of different objective functions on LTSY. The difference between the objective functions of MAX PNV compared to MAX LTSY, as well as other objective functions WITHIN an alternative are the only reasonable basis to measure whether the CDF objective has been met. As discussed further on other reasonable objective functions could include minimizing disturbance index subject to maximizing LTSY and maximizing total harvest volume over time.

Several comments at the end of this paper regarding the provisions for monitoring the intensive management techniques should be included in the ITP.

Comments on HCP (Volume 1)

NWC-3

The model overstates the land available for harvest and thus the total harvest by the following reasons. No special concern codes are discussed on pages 6 and 42 of the SYP that leads one to believe that anything but standard prescriptions are available for the following types of lands as modeled:

1. There are approximately 1850 acres of rocked roads that are not capable of forest management and should not be included in the model.

2. There are 358 acres of extreme mass wasting potential lands that according to the HCP (pg. 59) are not available for harvest. In addition there are 8,903 acres of VH which require geologist review and reduced prescriptions which appear to have been modeled but there is no way to know if they were modeled with clearcuts.

3. There are 1,782 acres of extreme soil erosion hazard lands that need to have modified prescriptions.

4. Class 2 stream miles are likely undercounted (see page 16 for estimate of stream miles). The result is more acres are clearcut than would be the case if the miles were correctly accounted for. USGS maps generally undercount the miles of class 2 streams. On an 88,000 acre forested property in NW Humboldt County there are an estimated 138 miles of Class 2 streams on the USGS topo maps but field checking has confirmed there are in excess of 229 miles of such streams. An obvious check against the validity of the PALCO estimates is to compare the USGS maps to those of submitted THP's. The result of expanding the number of class 2 stream miles would be to increase the number of class 2 streams from 751

miles to 1245 miles, and the number of acres of WLPZ's from 16,688 to 27,800 acres. This would increase the amount of land in the restricted category by over 10,000 acres, a 5% increase over the present modeling. NWC-3 con.

Disturbance index uses a 10 year recovery interval that is not consistent with the ERA methodology on which it is based. The sufficiency comments from 2/20/97 make the same point. If a 20 year recovery period is used, the DI's will be substantially higher and the model will hit the DI constraint far more often. In addition, the constraint of 20% as a limit is higher by far than the 15% that the same methodology suggests is the threshold of concern for cumulative effects. The 10 year DI recovery interval versus 20 years is likely to have major implications to the harvest schedule. NWC-4

The objective function for the modeling used MAX PNV. With 50 year rotations it is no wonder that 25% of the property is scheduled for harvest in the first period. Since the objective function is to maximize PNV, over 50% of the total value of the 120 years of harvest is included in the first period harvest. NWC-5

The harvest schedule represents a Late Succession surplus forest being converted to a mid succession forest of 20-50 year old forest. Early period harvests in excess of the LTSY indicate that the "extensive" management of the past 50 years has resulted in stands with a deficit condition in comparison to future stands. The corollary to this is that such a harvest schedule could not be achieved if future stand conditions did NOT have the 35% increase in volume over the extensive stands of today. Early period harvest of future ownership stocking is the classic Allowable Cut Effect (ACE) discussed thoroughly during the late 60's and early 70's on public lands.

The impact of the ACE is particularly evident given the need for a substantial investment in "intensive" early stand management such as brush control and precommercial thinning. Increased harvest is available NOW given a 35% increase in FUTURE yield in 50 years AND assuming substantial investments in intensive management. For instance, Volume three, part C, unnumbered page 65 states that 17,360 acres of precommercial thinning will be required. However the sum of the acres of intensive treatment in the first decade requires PCT on 35,325 acres (see unnumbered page 22 Area Assigned by Silvicultural Prescription Code, same volume). Given that not all acres require PCT, it would be hard to imagine how the requirement to implement PCT on 35,325, in order to receive a 35% increase in yield, can be so radically reduced to 50% of the acreage and yet assume full implementation of the intensive yield streams for the harvest schedule.

A reasonable estimate of the 50% decrease in treated acres is likely based on mechanical harvester treatment for PCT as was implemented on the Scotia Tree Farm. The SYP indicates only ½ of the total PCT treatments are scheduled, this appears consistent with mechanical harvester operations on cat logged sites. However, the balance of the acres

must be assumed to require this PCT treatment in order to receive the benefit of the 35% increase in yield. How and where these acres are proposed for treatment is not spelled out in the HCP or the SYP. In addition, mechanical PCT treatments and their costs should be modeled only for tractor ground. On cable ground an alternative more costly hand treatment should be scheduled. HWC-5 CON.

At a minimum, I would suggest a sensitivity analysis be conducted by limiting these prescriptions in the first period to 50% of the total acreage in intensive management to gauge the effect of PCT on LTSY. This is due to the fact that if the agreed upon early stand work is not completed then the harvest will have been in excess of that agreed to between PALCO, CDF and the approving agencies.

The HCP discussed a selective harvest alternative that is artificially constrained to harvest only 2% of inventory (pg. 40 bottom). This is not a reasonable alternative comparison given this critical limitation which is NOT a part of the PNV alternative. A better formulation of the selective harvest alternative would be to MAX LTSY subject to selective cut prescriptions only, or MAX the sum of harvests, then rerun the model with these harvest levels but constrain the prescriptions to only selective cut. HWC-6

The intent of the law would be best met by an alternative which seeks to maximize the LTSY or the sum of all harvests (with suitable flow constraints) first, then rerun the model with these values as constraints while setting the objective function to MAX PNV. This type of alternative would provide an economically efficient solution to the range of prescriptions while constraining the harvest to that which maximizes long term yield or total harvest during the planning period.

Another alternative would be to minimize DI while constraining harvest to that found from maximizing total harvest from an earlier run.

Comments on HCP LTSY calculations

The HCP refers to Volume III Part C for an explanation of the calculation of the LTSY. The explanation on page 29 of Part C is approximately 1 paragraph long, but it contains the statement that for even aged prescriptions LTSY is the mean annual increment and for selection prescriptions the LTSY is the PAI of the last 4 periods. However (and this is a critical problem) the LTSY per acre figures for each prescription shown on unnumbered page 45 of part C (Pre Harvest Stand Conditions for Site II lands Reported by Prescription Group (PL_0408)) show that the LTSY calculation is NOT based on the MAI for each prescription but instead is based on the 10 year PAI for each prescription. The difference between MAI and PAI is relatively significant. For instance, the LTSY calculation for any acre harvested under prescription 541 (50 year clearcut with intensive management) which generates a yield of 57.8 MBF/ac. shows an average regulated HWC-7

growth of 1.62 MBF/ac/yr. This is obviously the PAI of the acre not the MAI since the MAI is only 1.15 MBF/ac/yr. The difference between the two calculations is about 40%. NWC-7 con.

Given the above error, I originally assumed the table was in error and that the model outputs were correctly calculated. However, when I calculated the LTSY for 170,000 acres of the 189,000 acres of the property under management in the linear program, the LTSY calculation using PAI was approximately what the HCP projects. The LTSY for the property using MAI is only 160,000 MBF/year, a substantial reduction from 233,000 MBF/ac/yr.

I strongly suggest CDF confirm whether the LTSY accounting row in the model is based on MAI or PAI. It appears the LTSY is incorrectly calculated at a figure far higher than what the documentation shows.

Another error is the HCP says (pg. 28) LTSY is set at 233,520 MBF/year and that table nine and figure one summarize the LTSY projections in ten year increments. The later is an incorrect statement since LTSY does not vary over time; instead it is a single figure arrived at by summing all of the individual selected prescription LTSY's. Each prescription has only 1 LTSY calculation, and the linear program solution has only one LTSY value for the entire planning period, not for each decade. This statement should be revised to state that LTSY is set at (whatever the correct figure is) and that the 12 decade harvest schedule is shown in Table 9 and Figure 1. NWC-8

Comments on Volume III

No special concern codes (and thus no constraints nor accounting rows) have been established which are related to extreme or very high mass wasting potential (MWP), nor to extreme or very high ERH. It is obvious that the land type special concern components of interest include buffering harvest near State Parks and public roads, but there is no tracking of EHR or MWP within the model, hence no spatially explicit way to account for these factors. As a condition of approval of the HCP/SYP I would strongly suggest that the model be reformulated to include a method for accounting for and constraining harvest on extreme and very high EHR and MWP lands. NWC-9

It would be extremely helpful if the SYP could explain how the harvest of redwood to Douglas-fir changes so dramatically over the 120 year period of the plan. Although volumes per acre of Douglas-fir are likely higher given the site index of the two species, value differences would surely favor redwood given the objective function. In general, the value of second growth Douglas-fir trails redwood second growth by about $100/MBF according to the economic parameters listed on page 36 of Part A of Volume 3. The shift in volume harvested of Douglas-fir is dramatic in the fifth period, which is the likely period when stands clearcut in this period are slated for harvest again. Thus it NWC-10

would seem to me that while Douglas-fir might outperform redwood from a volume perspective, it could not outperform redwood from a value perspective. The model appears to be placing harvest of Douglas-fir far out into the future due to its high volume contribution to the flow constraints and its "poor" contribution to PNV. The high volume of Douglas-fir at the end of the planning period makes sense in terms of flow constraints which link harvest period-to-period and thus from period 1 to period 12. Obviously the cost of the flow constraints is relatively unimportant in the latter periods since regardless of the value of either Douglas-fir or redwood, the discounted value of any volume 5 or more decades in the future is only 7% or less to the contribution of the objective function. From a modeling standpoint this makes sense, however, from an ecological standpoint this does not make sense. Given redwood's ability to sprout and given the inventory statistics for the property it only makes sense that with extensive management stands will continue to be dominated by redwood. It seems unlikely that intensive management could so skew the species distribution of the property away from redwood to Douglas-fir.

HWC-10 con.

Volume III, part D is an explanation of the calibration of the FREIGHTS model. This calibration estimates there is a 35% increase in volume likely between extensively managed stands and intensively managed stands. However, the independent review of the calibration and growth modeling concludes that 15% is conservative. Essentially, Biging did not analyze a 35% increase in yield from intensive versus extensive management, instead he states a "A fifteen percent gain in volume yield for this species [redwood] is likely conservative." However, volume III, part D does not attempt to answer whether 15% or 35% is the likely factor. Biging's analysis is based on a review of the FREIGHTS calibration, which was available to him prior to his work of Nov. 1996. It is unclear (since no dates of preparation are listed) when Part D of Volume III was prepared, however it appears that it was prepared after Dr. Biging's work.

HWC-11

In reviewing Lindquist and Palley for SI 160 (100 yr. base age of Site II redwood at 100' tall at 50 years) the volume per acre is approximately 47 MBF Scribner (based on Bigings conversion equations for 20" DBH tree of average basal area for a 50 year old stand). The Lindquist and Palley volumes are considered "overly generous" according to the FREIGHTS calibration analysis (Volume III, part D). The FREIGHTS intensive volume for 50 year old site II land is 57.6 MBF/acre which is 23% higher than Lindquist and Palley. The corresponding extensive yield predicted by FREIGHTS is 41 MBF/acre, about 13% less than Lindquist and Palley. Although I would tend to agree with the comments of Biging and the conclusion of calibration section, I cannot agree with the replacement of redwood with Douglas-fir over time from an ecological standpoint.

HWC-12

Finally, Biging, Davis and the Vestra people all point to the lack of data regarding calibration of the FREIGHTS model (i.e. see Obtaining Local Data, Volume III, part D, pg. 1). However, the HJW data does point to a substantial number of plots in the YYR

HWC-13

and YR stand structure classes, which have been thinned. Based on the number of plots on unnumbered page 114A it appears there are in excess of 640 plots measured in 1986 that have been thinned. This is a staggering number of the total of 5000 plots measured by HJW. These plots could be remeasured today in order to gain insight into intensively managed yields resulting from thinning. Granted there are no plots which have had the other intensive silvicultural treatments applied such as brush control and PCT.

NWC-13 con.

Comments on Volume III Monitoring Provisions

In Volume III, Part G, Provisions for Monitoring Intensive Management Techniques contains a relatively robust monitoring plan for monitoring implementation of the intensive management techniques which are required in order to harvest the cut. The section needs to be slightly changed to maintain its factual basis. In provision 2, the word effective in line 4 is incorrect. No amount of monitoring within the first 5 years can prove how effective the intensive management techniques are at achieving increased yields 50 years in the future. Instead, this word should be changed to implemented. Second, it should be made absolutely clear that the "annual LTSY" is indeed the LTSY for the decade divided by 10 years and not, instead, the LTSY divided by the number of year remaining in the period for which it was calculated.

NWC-14

A more conservative monitoring approach would be to constrain the HARVEST during the first five years to that likely given an extensive management regime (i.e. rerun the model and constrain all harvests to prescriptions 401-416, 451-456, 501-511, and 551-556). The HARVEST would be allowed to increase to the intensive amount of the first period by the end of the decade IF the required work is within 10% of the amount required for the first five years of the first decade.